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ABSTRACT

This study attempts to respond to the suggestions of Stewart and Jones and the criticisms of Sattler and Buckhalt by assessing the precision of the Slosson Intelligence Test (SIT) in predicting Wechsler Intelligence Scale for Children-Revised (WISC-R) scores with a population of restricted range (gifted children), and examining the consistency of the SIT and WISC-R by comparing inter-examiner scores. Sixty-one students, ranging in age from 6 to 11, were randomly selected from four elementary schools and were administered the SIT and WISC-R. The school mean differences and examiner mean differences were compared respectively using dependent t tests. The SIT mean scores and WISC-R mean scores were compared respectively across school and examiners with independent t tests. The correlations between SIT scores and WISC-R scores across schools and evaluators was compared using z tests. The results indicate that at the lower end of the scale, SIT scores tend to underestimate WISC-R scores; but, as SIT scores increase, they increasingly overestimate WISC-R scores. Therefore, valuable diagnostic information that yields a qualitative picture of the child's strengths will be omitted using SIT alone. (PN)

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SCREENING GIFTED STUDENTS:

A COMPARISON OF THE SIT AND WISC-R

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The Slosson Intelligence Test (SIT) is a short age-scale screening test designed to evaluate general intelligence (Slosson, 1963). It has become a popular device for screening exceptional children as it is easily scored and can be administered by psychometrically untrained examiners. Since the publication of the SIT in 1963, many studies comparing the SIT and other individual intellectual assessment instruments have been conducted. In a review of relevant research, Stewart and Jones (1976) found correlations between the SIT and the Stanford-Binet Intelligence Scale to be primarily in the .90's. A similar degree of relationship was obtained between the SIT and the WISC-R (median $r = .78$). Stewart and Jones also made two timely suggestions. They first suggested that when using the SIT as a screening or reevaluation instrument regression equations and standard errors of estimate should be used to establish relevant cut-off scores. Second, after reviewing samples with a restricted I.Q. range, they indicated that the obtained correlations between the SIT and WISC-R were smaller than those found with unrestricted populations, yet they yielded greater predictive validity. As a result they recommended that future SIT validity studies should examine other samples with restricted ranges.

Other studies involving specific categories of special education populations have focused on the relationship between the SIT and the WISC-R. Covin (1977) in a study of 50 children referred for placement in classes for the educable mentally retarded found a correlation of .60 between SIT scores and the WISC-R Full Scale scores. In a study similar with 79 gifted students, Karnes and Brown (1979) obtained a correlation of .48.

One issue relating to the SIT concerns its appropriateness as a placement versus a screening instrument. Although the SIT is commonly used within Alabama for determining eligibility for gifted programs, substituting it for

the Stanford-Binet was proscribed in the original review in Buros (Himelstein, 1972). While this caveat was ignored, other reasons to restrict its use include the antiquated ratio I.Q., the large standard deviation estimated to be about 25 points (Lowrance, 1979), and the limited nature of the norm group. More recently, Sattler (1982) and a recent memorandum from the Alabama State Department of Education (Buckhalt, 1983) have raised serious questions about the use of the SIT.

Another potential problem area concerns inter-examiner consistency. An examination of competencies requisite for the administration of the SIT would suggest that examiner bias would be minimized. However, the issue seems to have received little attention. Studies that did examine reliability reported high coefficients with a standard error of measurement of 4.3 (Reynolds, 1979; Slosson, 1963).

The purpose of this study was to attempt to respond to the suggestions of Stewart and Jones and the criticisms of Sattler and Buckhalt by (a) assessing the precision of the SIT in predicting WISC-R scores with a population with a restricted range (gifted children), and (b) examining the consistency of the SIT and the WISC-R by comparing inter-examiner scores.

Null hypotheses to be tested were:

(1) SIT mean scores and WISC-R mean scores are not significantly different across schools or examiners.

(2) Intra-mean scores for the SIT and WISC-R respectively, are not significantly different across schools or examiners.

(3) The correlations between SIT scores and WISC-R scores are not significantly different across schools or examiners.

METHOD

Subjects

The sample consisted of 61 students randomly selected from four elementary school populations of 300 students who were placed in programs for intellectually gifted children. There were 31 females and 30 males ranging in age from 6-1 to 11-2. They represented middle to upper middle class socio-economic status levels. All SIT's and WISC-R's were administered during the 1981/82 school year. Two certified school psychometrists administered the WISC-R, Examiner A at Schools 1, 4 and Examiner B at schools 2, 3, while the SIT was administered by local school personnel. Data to be compared were SIT scores and WISC-R Full Scale scores (see Table 1).

Results and Discussion

In order to test the first hypothesis that SIT mean scores and WISC-R mean scores were not significantly different across schools or examiners, the school mean differences and examiner mean differences were compared respectively using dependent t tests (see Table 2). Results indicated that SIT mean scores for schools 1, 2, and 3 and both SIT examiner means were significantly higher than the WISC-R mean scores ($p < .05$). Only the means for school 4 were not significantly different.

As a further measure of examiner consistency, hypothesis 2 was tested by comparing SIT mean scores and WISC-R mean scores, respectively, across schools and examiners with independent t tests. Results indicated no significent differences between all pairs of SIT means. The only WISC-R mean comparison that was significantly different was School mean 2 versus School mean 4 ($t = 6.62$, $p < .01$).

In order to test the third null hypothesis that the correlations between SIT scores and WISC-R scores were not significantly different across schools or examiners, Z tests were conducted. Each correlation coefficient was first changed into Fisher's Z statistic, and then each correlation was compared against every other correlation. Examination of the two matrices in Table 3 indicates that the correlation coefficients did not significantly differ from each other. Although correlations ranged from .02 to .39 (see Table 4), the relationship between the SIT I.Q. scores and the WISC-R scores was consistent across schools and evaluators.

As a further measure of the accuracy of prediction of SIT scores, a regression equation, $Y = 99.55 + .21X$, $(SE = 8.8)$ was computed where X is the independent variable (SIT) and Y is the dependent variable (WISC-R) (see Table 5). The predicted WISC-R scores based on given SIT I.Q. scores are presented in Table 6. The equation is comparable to those reported in other studies with gifted children (Karnes and Brown, 1979; Machen, 1972). These results also support the findings of Karnes and Brown which indicated that at the lower end of the scale, SIT scores tend to underestimate WISC-R scores. However, as SIT scores increase, they increasingly overestimate WISC-R scores. The SIT, then, does have utility as a screening devise for gifted students, if one takes its measurement limitations and its predictive idiosyncracies into account. Using a SIT score cutoff score of 120 would seem to be reasonable if a WISC-R score of 130 is a criterion for placement in a gifted program. However, if one attempts to use the SIT in lieu of the WISC-R, valuable diagnostic information that yields a qualitative picture of the child's strengths will be omitted.

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TABLE 1

SIT IQ AND WISC-R FULL SCALE IQ SCORES
ACCORDING TO SCHOOLS AND EXAMINERS

	SIT I.Q.	WISC-R I.Q.
EXAMINER A		
School 1	147	129
	135	131
	131	121
	139	129
	136	129
	135	117
	128	126
	136	123
	135	135
	129	126
	131	132
	127	130
	128	131
	130	136
	131	124
	146	141
	134	141
	135	132
School 4	132	129
	131	142
	138	138
	127	123
	138	143
	148	140
	137	142
	133	133
	142	135
	128	118
	125	130
	125	128
	132	130
	125	142
	145	130
EXAMINER B		
School 2	143	128
	135	109
	129	126
	136	118
	127	122
	145	114
	126	120
	132	123

Table 1 continued

	134	106
	140	125
	125	112
	139	107
	132	124
	125	120
	138	126
School 3	129	118
	165	131
	139	126
	127	131
	130	130
	129	129
	132	121
	142	122
	128	135
	134	126
	131	114
	140	142
	150	133

TABLE 2

MEANS AND STANDARD DEVIATIONS
OF SIT AND WISC-R FULL SCALE IQ

	SIT $\bar{X}$	SIT SD	WISC-R $\bar{X}$	WISC-R SD
SCHOOL 1	134.06	5.63	129.61	6.33
2	133.73	6.50	118.67	7.34
3	136.62	10.87	127.54	7.52
4	133.73	7.40	135.53	7.61
(Examiner A) 1, 4	133.91	6.39	131.39	7.11
(Examiner B) 2, 3	135.07	8.75	122.79	8.57
Total Sample	134.44	7.52	127.44	8.87

TABLE 3

Z MATRIX FOR SIT I.Q. AND
WISC-R FULL SCALE I.Q. SCORES

Schools	1	2	3	4	2,3 (EX. B)
1		.577	-.024	-.428	
2			-.554	-.98	
3				-.37	
4					
(Examiner A) 1, 4					.454

TABLE 4

CORRELATIONS FOR SIT I.Q.
AND WISC-R FULL SCALE I.Q.

	r
School 1	.24
2	.02
3	.25
4	.39
(Examiner A) 1, 4	.31
(Examiner B) 2, 3	.20
Total Sample	.18

TABLE 5

REGRESSION STATISTICS

	SOURCE	SS	df	MS
TOTAL SAMPLE	Regression	146.08844	1	146.08844
	Error	4572.96074	59	77.50781

F	r^2	SE	COEFF. OF VAR.
1.88482	.03096	8.80385	.069

	SOURCE	SS	df	MS
EXAMINER A	Regression	150.98597	1	150.9859
	Error	1464.8982	31	47.25461

F	r^2	SE	COEFF. OF VAR.
3.19516	.0344	6.87420	.052319

	SOURCE	SS	df	MS
EXAMINER B	Regression	81.93861	1	81.93861
	Error	1898.77567	26	73.02983

F	r^2	SE	COEFF. OF VAR.
1.12199	.04137	8.54575	.0695988

TABLE 6

PREDICTED WISC-R FULL SCALE I.Q.

TOTAL GROUP	SIT	WISC-R
	120	124.44
	125	125.55
	130	126.9
	135	127.9
	140	128.1
	145	130.0
	150	131.1

Regression equation $Y = 99.55 + .21X$ n = 61

SE = 8.8